Impact of Advanced Access on access, workload, and continuity: controlled before-and-after and simulated-patient study

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ABSTRACT

Background

Case studies from the US suggest that Advanced Access appointment systems lead to shorter delays for appointments, reduced workload, and increased continuity of care.

Aim

To determine whether implementation of Advanced Access in general practice is associated with the above benefits in the UK.

Design of study

Controlled before-and-after and simulated-patient study.

Setting

Twenty-four practices that had implemented Advanced Access and 24 that had not.

Method

Anonymous telephone calls were made monthly to request an appointment. Numbers of appointments and patients consulting were calculated from practice records. Continuity was determined from anonymised patient records.

Results

The wait for an appointment with any doctor was slightly shorter at Advanced Access practices than control practices (mean 1.00 day and 1.87 days respectively, adjusted difference –0.75; 95% confidence interval [CI] = –1.51 to 0.004 days). Advanced Access practices met the NHS Plan 48-hour access target on 71% of occasions and control practices on 60% of occasions (adjusted odds ratio 1.61; 95% CI = 0.78 to 3.31; *P* = 0.200). The number of appointments offered, and patients seen, increased at both Advanced Access and control practices over the period studied, with no evidence of differences between them. There was no difference between Advanced Access and control practices in continuity of care (adjusted difference 0.003; 95% CI = –0.07 to 0.07).

Conclusion

Advanced Access practices provided slightly shorter waits for an appointment compared with control practices, but performance against NHS access targets was considerably poorer than officially reported for both types of practice. Advanced Access practices did not have reduced workload or increased continuity of care.

Keywords

appointment systems; continuity of patient care; family practice; health services accessibility; workload.

INTRODUCTION

Ensuring prompt access to care when it is needed is one of the hallmarks of a high quality healthcare system, but achieving this has long been a problem in many countries. The NHS Plan (2000) introduced a target that people with non-urgent problems should be able to see a health professional in primary care within 24 hours and a doctor within 48 hours (2 working days).[1] These targets are supported by financial incentives and performance against them is monitored.[2]

Advanced Access is an approach which originated in the US,[3] and was promoted in England by the National Primary Care Development Team as a way of improving access and achieving NHS Plan access targets.[2,4] Advanced Access reflects insights from queuing theory about the causes of delays in systems.[5–7] It seeks to overcome the problems of traditional appointment systems by ensuring that there is sufficient capacity, in terms of available

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appointments, to meet patients' demands so they can be seen on the day of their choice.[3,4] This is achieved by regular measurement of demand, matching supply of appointments to demand, providing alternatives to face-to-face appointments, and having contingency plans.[2,4]

Practices in England were encouraged to implement Advanced Access and supported by a network of 'Access Facilitators' and a primary care collaborative.[8] By May 2003, the collaborative claimed to have worked with over 3500 practices serving around 23 million patients (about a third of all practices in England), making it the largest health improvement programme in the world.[9]

Proponents of Advanced Access claim that it leads to a number of benefits: patients have much less waiting time for an appointment,[6,10] are more satisfied with the appointment system,[4,6,11] and are less likely to fail to attend.[4–6] Critics of Advanced Access have expressed concern that attempting to see people on the day they request to be seen may lead to increases in total practice workload,[12,13] and that prioritising speed of access will lead to reduced continuity of care,[12] although advocates of the system claim that the opposite is true.[5,7]

Considering the enthusiasm with which Advanced Access has been promoted in the US and England, it is noteworthy that little rigorous evaluation has been undertaken in either country. This paper describes quantitative aspects of a controlled multi-centre evaluation of Advanced Access in England. The aims of the studies reported here were to assess whether Advanced Access is associated with changes in the wait for an appointment, practice capacity and workload, or continuity of care.

How this fits in

Advanced Access is an approach to improving access to primary care. It was developed in the US and has been heavily promoted in the UK. Proponents claim that it reduces waiting time for an appointment, reduces practice workload, and improves continuity of care. In this before-and-after study which compares Advanced Access and control practices, those operating Advanced Access provided slightly shorter waiting times for an appointment with any doctor, but both types of practices had longer waiting times than NHS access targets. There was no difference between Advanced Access and control practices in practice workload or continuity of care.

METHOD

An initial postal questionnaire survey was conducted of all 391 general practices in 12 Primary Care Trust (PCT) areas chosen to be representative of England. Practices were asked to state whether they operated Advanced Access and to provide details of the extent to which they had implemented key Advanced Access principles in their appointment systems. Detailed findings have been published elsewhere.[14] From the 245 (63%) practices that responded, the aim was to recruit 24 practices that claimed to operate Advanced Access and had implemented the relevant principles ('Advanced Access practices'), and 24 practices that stated they did not operate Advanced Access and had not implemented these principles ('control practices'). The study sought to compare practices most clearly implementing Advanced Access with those not implementing Advanced Access, omitting the 119/245 (49%) not falling into either group. Eligible practices were approached in random order in each PCT until two practices of each type were recruited, or until the attempt was made to recruit all eligible practices in the PCT. Of 65 potential Advanced Access practices, 29 of the 48 of those contacted agreed (60%) and 24 were selected to participate; those selected were balanced across PCTs as much as possible. Of 61 potential control practices, 26 of 49 contacted agreed to participate (53%) and 24 were included.

Data were collected from each of the 48 practices in relation to ease of contacting the practice, waiting time for an appointment, number of appointments offered, number of patients consulting, failed appointments, and longitudinal continuity of care. The performance of practices after they had introduced Advanced Access ('post-period') was examined, and data were retrospectively collected about workload and continuity in the period before Advanced Access ('pre-period'). Advanced Access practices were compared with control practices. Each Advanced

Table 1. Characteristics of Advanced Access and control practices included in the evaluation and from all 12 PCTs.

	Advanced Access?				All practices in 12 PCTs
	Yes (n = 24)		No (n = 24)		n = 391
	Number of practices	%	Number of practices	%	%
Personal medical services contract	9	38	7	29	38
Training practice	12	50	9	38	32
Receive deprivation payments	13	54	14	58	
Any dispensing patients	4	17	3	13	15
Previously a fund-holding practice	11	46	8	33	
	Mean	SD	Mean	SD	Mean
List size	8240	3605	6782	3404	6442
Doctors WTE	4.19	2.05	3.80	1.94	3.26
Total QOF points	1010	39.4	978	65.1	961

PCTs = Primary Care Trusts. QOF = Quality and Outcomes Framework. WTE = whole time equivalent.

Access practice was paired with a control practice with a similar number of registered patients and data were collected over matched periods.

Access to care

In a 'simulated-patient' study, the researchers telephoned each practice once a month for 11 consecutive months to make an appointment with a doctor. Each attempt to contact the practice was on a randomly selected day of the week and within a randomly selected time slot. If the telephone was busy, diverted to an answer machine, and/or not answered within 2 minutes, up to five further calls were made during the time slot. Six attempts to contact each practice involved a request for an appointment with any doctor and five with a randomly selected named doctor. The time taken to make telephone contact and the wait for the first and the third available appointments were recorded (the third available appointment has been advocated as a better measure because it avoids fluctuations due to short-notice cancellations, but is more difficult to collect reliably).[4] If the receptionist was not able to offer any appointments, offered alternatives were recorded.

All practices consented to participate, but did not know when a researcher would contact them. Researchers asked for the first available appointment, saying that the problem was not medically urgent but they wanted to be seen as soon as possible. When an appointment time had been given, researchers then said that that appointment was inconvenient and asked for the second and third available appointment. Researchers avoided disclosing their identity unless directly asked, and recorded whether or not such disclosures were made before details of the appointment had been obtained. Data were collected between April 2005 and February 2006.

Practice capacity and workload

Data were collected from each Advanced Access practice of all patient appointments and contacts during a random sample of five non-consecutive days over 5 weeks in January/February 2005 (post-period), and 5 days in the equivalent weeks of the last January/February before the practice introduced Advanced Access (pre-period). Data were collected on the same dates in each control practice as in its Advanced Access pair.

Totals were divided by the number of registered patients. Separate totals were calculated for appointments with (a) doctors in surgery and (b) both doctors and nurses, including surgery consultations, home visits, and telephone calls. 'Capacity' was defined as the number of appointment slots that were available to be booked; 'unplanned work' as the number of patients seen outside routine appointment slots; 'workload' as the number of people seen; and 'failed appointment rate' as the number of people who did not attend an appointment divided by the number of people who booked an appointment.

Continuity of care

Longitudinal continuity of care[15] offered by practices before and after they introduced Advanced Access was compared with care by control practices. Data were collected about consultations from 1 January 2002, or from a year before the practice introduced Advanced Access if this was earlier. Data were collected over the same period for each Advanced Access/control practice pair.

In each practice, a sample of patients was selected using the random-selection function of software for practice computerised records, or random number tables where this was not possible. For each consultation within the data collection period, the following details were collected from computerised and manual records: date, type, professional status, and clinician identifier. All data were anonymised. Where data were downloaded electronically from

Table 2. Number (%) of working days to obtain an appointment in Advanced Access and control practices.

	Advanced Access practices		Control practices	
	Appointment with any doctor	Appointment with particular doctor	Appointment with any doctor	Appointment with particular doctor
	n = 116	*n* = 71	*n* = 113	*n* = 82
Number of working days to first appointment[a]				
0	61 (52.6)	19 (26.8)	37 (32.7)	12 (14.6)
1	28 (24.1)	11 (15.5)	22 (19.5)	16 (19.5)
2	13 (11.2)	10 (14.1)	25 (22.1)	22 (26.8)
3	5 (4.3)	11 (15.5)	12 (10.6)	8 (9.8)
4	3 (2.6)	6 (8.5)	6 (5.3)	4 (4.9)
5	2 (1.7)	1 (1.4)	3 (2.7)	6 (7.3)
>5	4 (3.4)	13 (18.3)	8 (7.1)	14 (17.1)

[a]*0 = same day.*

Table 3. Wait for an appointment with any doctor or particular doctor in Advanced Access and control practices.

	Advanced Access		Control		Adjusted difference in mean (95% CI)	*P*-value[a]
	Median (IQR)	Mean	Median (IQR)	Mean		
Any doctor						
First available appointment	0 (0–1)	1.00	1 (0–3)	1.87	–0.75 (–1.51 to 0.004)	0.05
Third available appointment	1 (0–2)	1.61	2 (1–3)	2.87	–1.14 (–2.23 to –0.05)	0.04
Specific doctor						
First available appointment	2 (0–4)	3.18	2 (1–4)	3.44	–0.23 (–1.81 to 1.34)	0.77
Third available appointment	3 (1–4)	3.50	3 (2–5)	4.36	–0.51(–2.00 to 0.97)	0.49

[a]*Adjusted for practice list size, contract type, training, and previous fund-holding status, time slot, and whether or not the researcher's identity was disclosed. Analyses also took account of clustering by practice. Figures are number of working days, where 0 = same day. IQR = interquartile range.*

computerised records systems, 200 patients per practice were randomly selected. Where details of consultations were extracted by hand, researchers collected data on as many patients as possible within a 1-day visit to the practice, seeking to collect data on a minimum of 50 patients. Longitudinal continuity was analysed using the Continuity of Care index.[16] This measure takes account of the proportion of consultations with the same doctor, adjusted for the number of consultations. It is scored from 0 (different doctors on every occasion) to 1 (all care from same doctor). The main analysis was of continuity within face-to-face consultations with doctors; continuity within all appointment types and including nurses as well as doctors was a secondary analysis.

Analysis

Analyses investigated differences between Advanced Access and control practices in the period following introduction of Advanced Access, first using descriptive statistics and then using multivariable regression models adjusting for activity in the period before Advanced Access (where appropriate and with available data) and other potentially important confounding variables affecting patients or practices. Details of these variables are given as footnotes to each Table. All analyses took account of clustering by practice and were conducted using Stata (version 9). Some practices could not provide reliable data about some aspects of their appointments and workload in the period prior to Advanced Access; therefore, the number of practices contributing to different analyses varies as shown.

RESULTS

Of the 48 practices originally recruited, one control practice dropped out during the study, leaving 24 Advanced Access practices and 23 control practices in some analyses. There were some differences between Advanced Access and control practices. On average Advanced Access practices were slightly larger, they were more likely to be involved in postgraduate training and to have previously been fund-holding practices, and achieved slightly more points on the Quality and Outcomes Framework. Similar differences existed between practices recruited to the study compared with all practices in the participating PCTs (Table 1).

Access to care

On 10 occasions, attempts by a researcher to contact the practice failed during the allocated time slot because the practice was closed for the remainder of the day; on one occasion the researcher did not complete six calls within the designated time slot. Of the remaining 508 attempts, it was possible to contact a receptionist within six calls on 493 occasions (97%). Fewer calls were needed per attempt to speak to a receptionist in Advanced Access practices than in control practices (mean number of calls 1.41 and 1.74 respectively; adjusted difference in means –0.31; 95% confidence interval [CI] = –0.56 to –0.05; *P* = 0.022).

When asking to see any doctor, 53% of appointments offered at Advanced Access practices (61/116) were on the same day as the request, compared with 33% (37/113) for control practices (adjusted odds ratio [OR] 2.23; 95% CI = 0.96 to 5.19). Advanced Access practices met the 48-hour NHS Plan access target of offering an appointment within 2 working days on 88% (102/116) of occasions compared with 74% (84/113) for control practices (Table 2; adjusted OR 2.35; 95% CI = 0.89 to 6.23; *P* = 0.086). However, in a fifth of requests to

Table 4. Continuity of care (COC) in Advanced Access and control practices.

	Advanced Access, mean (SD)		Control, mean (SD)		Crude difference	Adjusted difference[a] (95% CI)	Adjusted *P*-value[a]
	Pre-period	Post-period	Pre-period	Post-period			
COC index (doctors in surgery)	0.43 (0.36)	0.40 (0.35)	0.43 (0.35)	0.46 (0.34)	–0.06	0.003 (–0.07 to 0.07)	0.93
COC index (doctors and nurses, all types consultations)	0.32 (0.31)	0.28 (0.27)	0.32 (0.30)	0.34 (0.30)	–0.06	0.006 (–0.07 to 0.08)	0.88

[a]*Adjusted for pre-period Advanced Access continuity scores, patient age and sex, and practice list size, training, contract type, and previous fund-holding status. All analyses take appropriate account of clustering by practice.*

see any doctor (19%; 55/284) the researcher was not able to make an appointment at all because the practice was closed (five requests; 2%), the receptionist could not be contacted within six calls (10 requests; 4%), and/or because the researcher was asked to phone back later (29 requests; 10%), to attend the practice and wait (10 requests; 4%), to accept telephone advice (three requests; 1%), or to see a nurse (two requests; 1%). In accordance with guidance,[2,17] if these calls were treated as not fulfilling the NHS access targets, then Advanced Access practices met the target on 71% (102/143) of occasions and control practices on 60% (84/141) of occasions (adjusted OR 1.61; 95%CI = 0.78 to 3.31; *P* = 0.200).

Mean waiting time for an appointment with any doctor was slightly shorter at Advanced Access practices, but there was no difference in the wait to see a specific doctor (Table 3).

Researchers disclosed their identity during only 15% (77/507) of calls, with no difference in rate of disclosure between Advanced Access (16%; 41/258) and control practices (15%; 36/249).

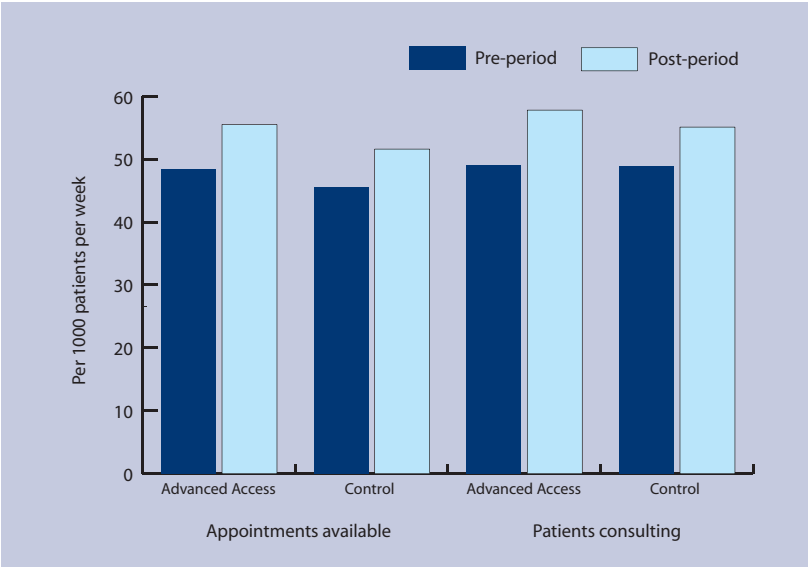

Figure 1. Number of appointments and consultations at Advanced Access and control practices before introduction of Advanced Access (pre-period) and after (post-period).

Practice capacity and workload

Data were collected from 47 practices on a total of 56 390 bookable appointments, 5442 unplanned appointments, 4851 telephone consultations, and 2043 home visits.

Figure 1 shows that doctors in Advanced Access practices provided more bookable appointments and saw a larger number of patients in surgery after the introduction of Advanced Access than control practices; however, there is no evidence that there was a greater increase in capacity or workload at Advanced Access practices compared with control practices (based on 38 practices providing before-and-after data, adjusted mean difference in increase in doctors' appointments 0.5 (95% CI = –10.4 to 9.5) and in patients seen 1.2 (95% CI = –7.1 to 9.4). There were similar results for doctors and nurses combined, in all types of settings (Supplementary Table 1).

Advanced Access and control practices provided considerably more appointments in the post-period than in the pre-period, and they also saw more patients (Figure 1). When combining the 38 practices that provided pre- and post-period data into a single group, there was evidence of an overall increase in the number of bookable appointments with doctors (in appointments per 1000 patients per week: from mean of 47.1 in pre-period to 53.6 in post-period; mean difference = 6.6; 95% CI = 1.4 to 11.7; *P* = 0.014), and also with doctors and nurses combined (from 72.2 in pre-period to 87.0 in post-period; mean change = 14.8; 95% CI = 7.3 to 22.2; *P*<0.001). The number of patients seen by doctors in surgery increased (per 1000 patients per week: from 49.0 to 56.6; mean change = 7.6; 95% CI = 3.1 to 12.0; *P* = 0.001) as did the number seen by doctors and nurses in all settings (from 77.4 to 95.8; mean change = 18.4; 95% CI = 10.4 to 26.3; *P*<0.001).

Following the introduction of Advanced Access, the failed appointment rate at Advanced Access practices fell from 4.3% to 3.4%, and at control practices from

4.8% to 4.7% over the same period, with no evidence of a difference between them (P = 0.85).

Continuity of care

A total of 11 4675 consultations from 47 practices were extracted from medical records. Of these, 162 (0.14%) consultations were excluded where the health professional was not known. There was no evidence of any difference between Advanced Access and control practices in longitudinal continuity of care following Advanced Access, either with doctors or overall (Table 4).

DISCUSSION

Summary of main findings

Practices operating Advanced Access in this study provided slightly quicker access to an appointment than control practices, with no evidence that there was any difference in total capacity, workload, or continuity of care. The benefits of Advanced Access were very modest, but this was in the context of a system that offered generally good access to primary care. When it was possible to make an appointment with a doctor, this was obtained by the end of the next working day on more than half the occasions in both types of practice. However, the level of access to care observed in this study was still well below that required by the NHS Plan target of offering all patients an appointment within 2 working days. The current findings contrast with official reports from the Department of Health based on non-anonymised surveys of practices, which claim that the NHS target is reached on 97% of occasions;[18] this figure may reflect incentives for practices (and the managers that monitor them) to report good results.

Strengths and limitations of the study

This is the first large scale evaluation of Advanced Access in any country. This study is based on widespread implementation of the approach rather than case studies of a small number of practices,[19] or studies based on self-reported data without controls.[20] The use of anonymous telephone calls is likely to provide a more reliable measure of access than the regular survey conducted by primary care trusts. This evaluation also demonstrates the impact of Advanced Access as it is actually implemented, which may not be entirely as the proponents of the approach intended.[14]

This study has a number of limitations. First, the evaluation as a whole was powered for a survey of patients,[21] and it has only limited power to detect small differences between types of practices for analyses based on practice level data. Full attention should be given to confidence intervals in interpreting the results. Second, some aspects of the evaluation are based on routinely collected data, and these were not available from all practices in the period before Advanced Access was implemented. Third, there were differences between the characteristics of Advanced Access and control practices. Although analyses were adjusted for these differences where possible, there may be other unidentified confounding factors. Fourth, the practices agreeing to participate in the study may be unrepresentative. However this is a problem for all practice-based research, and the response rates in this study suggest the findings are probably generalisable.

Comparison with existing literature

Earlier case studies of Advanced Access from the US suggested that it offered major improvements in access to care, with reduced waits for an appointment,[5,6,10,22] increased continuity of care,[5,7] and reduced practice workload.[7] The current study did not demonstrate any such dramatic effects. However, these earlier US studies were conducted in the context of healthcare centres that were seeking to reduce delays to obtain an appointment which had been between 18 and 55 days;[7,22,23] far longer than that experienced in any practice in the current study in England. On the other hand, the reports from the US describe levels of continuity of care which were much higher than those found in this study.[6,22,24]

Implications for future research and clinical practice

These findings illustrate the limitations of introducing a service innovation, which was developed to solve the problems of one healthcare system, into a very different system in another country with its own challenges and incentives.[25] In the English context of fairly rapid access and low continuity, the potential for further improvements to access is limited. It is more important that policy should promote choice of doctor and appointment time, which are higher priorities than speed of access for many patients.[26]

The introduction of Advanced Access in England appears to be associated with very modest improvements in a system which already offers fast access to care for most people.

Supplementary information

Additional information accompanies this article at http://www.rcgp.org.uk/bjgp-suppinfo

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Ethics committee

Thames Valley Multicentre Research Ethics Committee (MREC Ref. No. 04/12/024)

Competing interests

The authors have stated that there are none

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REFERENCES

1. Department of Health. *The NHS Plan. A plan for investment. A plan for reform*. London: The Stationery Office, 2000.
2. Department of Health. *Achieving and sustaining improved access to Primary Care*. Department of Health. http://www.dh.gov.uk/PolicyAnd Guidance/OrganisationPolicy/PrimaryCare/PrimaryCareTrusts/PrimaryCareTrustsArticle/fs/en?CONTENT_ID=4016138&chk=gvOn07 (accessed 4 Jul 2007).
3. Murray M. Answers to your questions about same-day scheduling. *Fam Pract Manag* 2005; **12:** 59–64.
4. Oldham J. *Advanced access in primary care*. National Primary Care Development Team. http://www.npdt.org/AccesstoPrimaryCare/advancedaccess.pdf (accessed 4 Jul 2007).
5. Murray M, Berwick DM. Advanced Access. Reducing waiting and delays in primary care. *JAMA* 2003; **289:** 1035–1040.
6. Murray M, Tantau C. Redefining open access to primary care. *Manage Care Q* 1999; **7:** 45–55.
7. Murray M, Tantau C. Same day appointments: exploding the access paradigm. *Fam Pract Manag* 2000; **7:** 45–50.
8. Smith J. Redesigning health care. Radical redesign is a way to radically improve. *BMJ* 2001; **322:** 1257–1258.
9. Department of Health. *Raising standards: improving performance in the NHS*. http://www.dh.gov.uk/assetRoot/04/08/94/11/04089411.pdf (accessed 4 Jul 2007).
10. Anderson JB, Sotolongo CA. Implementing advanced access in a family medicine practice: a new paradigm in primary care. *N C Med J* 2005; **66:** 223–225.
11. Demand Management Group. *The big referral wizard: a guide to systems management in healthcare*. v1.2. London: NHS Modernisation Agency, 2002.
12. Lamb J. Why 'advanced access' is a retrograde step. *Br J Gen Pract* 2002; **52:** 1035.
13. Craighead IB. Practices in UK are working harder, not more efficiently. *BMJ* 2001; **323:** 804.
14. Goodall S, Montgomery AA, Banks J, *et al*. Implementation of Advanced Access in general practice: postal survey of practices. *Br J Gen Pract* 2006; **56:** 918–923.
15. Freeman G, Olesen F, Hjortdahl P. Continuity of care: an essential element of modern general practice? *Fam Pract* 2003; **20:** 623–627.
16. Bice TW, Boxerman SB. A quantitative measure of continuity of care. *Med Care* 1977; **15:** 347–349.
17. Department of Health. *Primary care access survey — frequently asked questions*. http://www.dh.gov.uk/assetRoot/04/07/92/00/04079200.pdf (accessed 4 Juy 2007).
18. Department of Health. *NHS patients and staff reap rewards of GP incentive scheme as world's biggest health database goes live* (press release 2005/0306). http://www.dh.gov.uk/en/Publicationsandstatistics/Pressreleases/DH_4118533(accessed 11 Jul 2007).
19. Murray M, Bodenheimer T, Rittenhouse D, Grumbach K. Improving timely access to primary care. Case studies of the advanced access model. *JAMA* 2003; **289:** 1042–1046.
20. Pickin M, O'Cathain A, Sampson FC, Dixon S. Evaluation of advanced access in the national primary care collaborative. *Br J Gen Pract* 2004; **54:** 334–340.
21. Salisbury C, Goodall S, Montgomery A, *et al*. Does Advanced Access improve access to primary health care? Questionnaire survey of patients. *Br J Gen Pract* 2007; **57(541):** 615–621.
22. Bundy DG, Randolph GD, Murray M, *et al*. Open access in primary care: results of a North Carolina pilot project. *Pediatrics* 2005; **116:** 82–87.
23. Solberg LI, Hroscikoski MC, Sperl-Hillen JM, *et al*. Key issues in transforming health care organizations for quality: the case of advanced access. *Jt Comm J Qual Saf* 2004; **30:** 15–24.
24. Solberg LI, Crain AL, Sperl-Hillen JM, *et al*. Effect of improved primary care access on quality of depression care. *Ann Fam Med* 2006; **4:** 69–74.
25. Sheldon T. Learning from abroad or policy tourism. *Br J Gen Pract* 2004; **54:** 410–411.
26. Rubin G, Bate A, George A, *et al*. Preferences for access to the GP: a discrete choice experiment. *Br J Gen Pract* 2006; **56:** 743–748.